

## REMARKS

Claims 22 and 23 are pending in the above-identified application. In this Response, claim 22 has been amended. No claims have been added or cancelled.

Applicants respectfully request the Examiner to reconsider and withdraw the outstanding rejections in view of the foregoing amendments and the following remarks.

### **Rejections under 35 U.S.C. § 103**

(i) Claim 22 has been rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over U.S. Patent No. 6,844,604 (hereinafter "Lee"), U.S. Patent No. 6,936,881 (hereinafter "Yeo") or U.S. Patent No. 6,930,059 (hereinafter "Conley"), all in view of U.S. Patent No. 3,996,021 (hereinafter "Chang") and U.S. Patent Publication No. 2002/0014647 (hereinafter "Seidl"). The rejection is respectfully traversed.

It should be noted that the Examiner appears to have relied on selective portions of the disclosures of Lee, Yeo, Conley, and Seidl to meet the limitations of the present claims. Then, it appears that the Examiner has relied upon Chang to provide motivation for the combination of Lee, Yeo, and Conley. (See Pages 2-4 of the Office Action dated February 15, 2008). In this regard, the Examiner takes the position that the "Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. (6,844,604), Yeo et al. (6,936,881) **OR** Conley Jr. et al., all in view of Chang et al. (3,996,021) and Seidl et al. (2002/0014647)". (Office Action, Page 5). However, at pages 3-4 of the Office Action, the Examiner does not cite Seidl as providing any motivation to combine any references. In fact, the Examiner states "Seidl et al. teach in figure 1 and related text a capacitor comprising a lower

electrode, an AHO( $(Al_x, Hf_{1-x})O_y$ ) film formed on the lower electrode, and an upper electrode formed on the AHO film". (Office Action, Page 3). Can the Examiner please clarify what motivation Seidl provides to combine which references?

Thus, Applicants respectfully maintain that the Examiner does not set forth motivation for the combination of Lee, Yeo, Conley, AND Seidl. In this regard, Applicants respectfully submit that the Office has the initial burden of establishing a factual basis to support the legal conclusion of obviousness. In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). For rejections under 35 U.S.C. § 103(a) based upon a combination of prior art elements, in KSR Int'l v. Teleflex Inc., 127 S.Ct. 1727, 1741, 82 USPQ2d 1385, 1396 (2007), the Supreme Court stated that a patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art. Rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. In re Kahn, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006). Accordingly, Applicants respectfully submit that the Examiner has failed to establish a *prima facie* case of obviousness of claim 22 over the cited references.

Further, even if it is assumed *arguendo* that a *prima facie* case of obviousness has been established by the Examiner, Applicants respectfully submit that the field of art in which Chang is classified is different from the field of art in which Seidl, Lee, Yeo, and Conley are classified. Specifically, Applicants respectfully submit that the international patent classification of Chang is B32B and the international patent classification of Seidl, Lee, Yeo, and Conley is H01L. Applicants further respectfully submit that in the U.S., Chang is classified in class 29;

Seidl, Lee, and Yeo are classified in class 257; and Conley is classified in class 438. Accordingly, Applicants respectfully submit that Chang, Seidl, Lee, Yeo, and Conley cannot be appropriately combined with another as they relate to different fields of endeavor. In fact, Applicants respectfully submit that Chang, Seidl, Lee, Yeo, and Conley seem to have been combined together using hindsight after reviewing the presently pending claims. In particular, Applicants respectfully submit that the Examiner seems to be picking and choosing various features of Chang, Seidl, Lee, Yeo, and Conley to obtain the presently recited claims. In this regard, it should be noted that M.P.E.P. § 2142 sets forth that impermissible hindsight must be avoided.

Moreover, if it is again assumed *arguendo* that a *prima facie* case of obviousness has been established by the Examiner, Applicants respectfully submit that Lee, Yeo, Conley, Chang, and Seidl either alone or in combination fail to disclose or suggest the presently recited dielectric layer structure in which the dielectric film is directly in contact with the upper electrode.

In particular, Applicants respectfully submit that Lee and Conley disclose a dielectric structure in which a pair of HfO layer and AlO layer is one or more sequentially deposited. Accordingly, Applicants respectfully submit that the uppermost layer in the dielectric structure is always an AlO layer and so an upper electrode in Lee and Conley, if they have an upper electrode, is directly in contact with an AlO layer. Therefore, Applicants respectfully submit that even if it is possible to replace Seidl's AHO film with Lee's AlO layer or Conley's AlO layer, the upper electrode of Lee and Conley may be directly in contact with an AHO film and not a dielectric layer having a dielectric constant higher than an AHO film because the uppermost dielectric layer in the dielectric structure will always be an AHO film.

In contrast, Applicants respectfully submit that in amended independent claim 22, the upper electrode is directly in contact with a dielectric film having a dielectric constant higher than an AHO film.

In view of at least the foregoing, Applicants respectfully submit that Lee and Conley together with the other cited references fail to disclose or suggest each and every feature recited in amended independent claim 22.

(ii) Claim 23 has been rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over Lee, Yeo or Conley, Chang, and Seidl and further in view of U.S. Patent No. 6,486,080 (hereinafter "Chooi"). The rejection is respectfully traversed.

Claim 23 depends from independent claim 22. Chooi is cited merely as disclosing the additional features recited in dependent claim 23. As such, Chooi fails to cure the many above-noted deficiencies with regard to Lee, Yeo, Conley, Chang, and Seidl. For at least the reasons provided hereinabove, Applicants respectfully submit that dependent claim 23 is also patentable over Lee, Yeo, Conley, Chang, and Seidl for at least the same reasons.

Accordingly, Applicants respectfully request that the obviousness rejection of claim 23 be withdrawn.

### **Conclusion**

Applicants invite the Examiner to contact Applicants' representative at the telephone number listed below if any issues remain in this matter, or if a discussion regarding any portion of the application is desired by the Examiner.

In the event that this paper is not timely filed within the currently set shortened statutory period, Applicants respectfully petition for an appropriate extension of time.

The fees for such extension of time may be charged to our Deposit Account No. 02-4800.

In the event that any additional fees are due with this paper, please charge our Deposit Account No. 02-4800.

Respectfully submitted,  
BUCHANAN INGERSOLL & ROONEY PC

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By:



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